ONTARIO CANCER FACTS

Unexpected lung cancer survival trends by neighbourhood-level income in adolescents and young adults

MAY 2019

Highlights

- A recent analysis showed unexpected lung cancer relative survival trends for adolescents and young adults in Ontario, with the middle neighbourhood-level income quintile (Q3) having the highest survival and the highest quintile (Q5) having similar survival to the other 3 quintiles (Q1, Q2, Q4).
- In every other age group, lung cancer survival was higher in the highest neighbourhood-level income quintiles (Q4, Q5) and lower in the lowest income quintiles (Q1, Q2).
- Despite the existence of a universal healthcare system, disparities in lung cancer survival still persist in Ontario.

According to a recent population-based cancer survival analysis, relative survival of adolescents and young adults (AYA) with lung cancer (ages 15 to 44) showed some unexpected trends. AYA in the middle neighbourhood-level

Citation

Cancer Care Ontario. Cancer Fact: Unexpected lung cancer survival trends by neighbourhood-level income in adolescents and young adults. May 2019. Available at cancercareontario.ca/Cancerfacts.

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income quintile (Q3) consistently had higher survival than those in other income quintiles (see figure). In addition, survival of AYA in the highest income quintile (Q5) was not significantly different from the survival of those in the other 3 income quintiles (Q1, Q2 and Q4). These findings differ from the more typical trend of increasing survival with increasing income quintile.

Figure | Data Table

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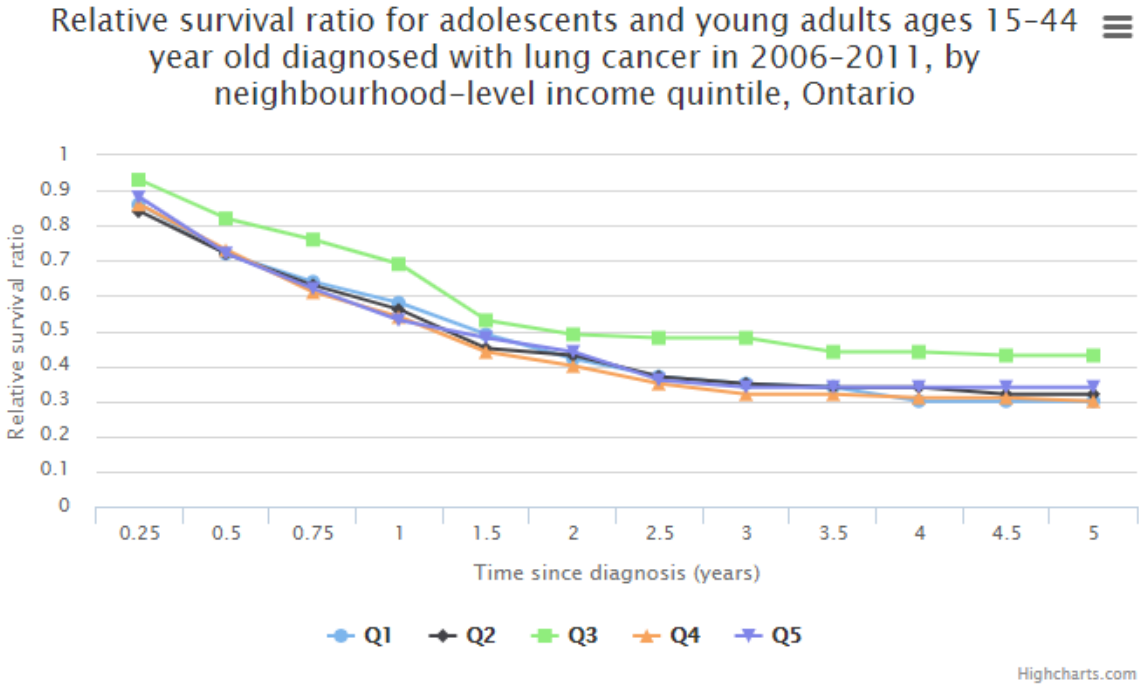

Source: Ontario Cancer Registry, 2018 (Cancer Care Ontario).

Notes: Cases with missing income quintile were excluded.
Neighbourhood income quintile: Q1 (lowest), Q2, Q3, Q4, Q5 (highest).

The analysis that produced these findings was conducted on 47,098 people with lung cancer (ages 15 to 99) diagnosed from 2006 to 2011 in Ontario. The relative survival ratio (RSR) indicates the likelihood of people with cancer surviving for a certain amount of time compared to similar people in the general population. Meaning that, the smaller the RSR, the poorer the survival is in cancer patients compared to the general population. The relative survival ratio was consistently better in higher neighbourhood-level income groups for all age groups combined and each of the other age groups (45 to 54, 55 to 64, 65 to 74 and 75 to 99) with lung cancer. The analysis did not uncover any unusual survival trends in any other age group.

To request cancer, renal or other health related data, go to **Access Data** .

In this analysis, the number of lung cancer cases diagnosed in AYA ages 15 to 44 (N=712 cases or 2% of total lung cancer cases)[1] is relatively small compared to other age groups, but it is important to improve their survival through cancer control programs and policies. AYA with lung cancer are a unique group of patients in terms of the biology of their cancers and their cancer experience.[2] By the time they are referred to a specialist, a higher percentage of young people with lung cancer are diagnosed with advanced stage disease than people over age 45.[3] It remains unclear why AYA living in middle income neighbourhoods have better survival than any other income groups. Further examination of factors contributing to socioeconomic differences in AYAs is important to help reduce lung cancer survival disparities in the future. More studies are needed to support the evidence that there are inequalities in cancer survival among different neighbourhood-level income groups across Ontario.

Lung cancer is the second most commonly diagnosed cancer in Ontario and is the leading cause of death from cancer for men and women. In Ontario, it is estimated that 11,396 new lung cancer cases were diagnosed in 2018.[4] Improving access to timely and effective care for people with lung cancer across the socioeconomic spectrum is important for helping to improve lung cancer survival in Ontario.

References

1. Cancer Care Ontario. Ontario Cancer Registry (special data extract) 2018.
2. Nur U, Lyratzopoulos G, Rachet B, Coleman MP. The impact of age at diagnosis on socioeconomic inequalities in adult cancer survival in England. Cancer Epidemiol. 2015; 39(4): 641–9.
3. Lyratzopoulos G, Abel GA, Brown CH, et al. Socio-demographic inequalities in stage of cancer diagnosis: evidence from patients with female breast, lung, colon, rectal, prostate, renal, bladder, melanoma, ovarian and endometrial cancer. Ann Oncol. 2013; 24(3): 843–50.
4. Cancer Care Ontario. Ontario Cancer Statistics 2018 (Data Tables). Available from: **https://www.cancercareontario.ca/en/statistical-reports/ontario-cancer-statistics-2018-report**.

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Relative survival ratio for adolescents and young adults ages 15–44 year old diagnosed with lung cancer in 2006–2011, by neighbourhood-level income quintile, Ontario

NEIGHBOURHOOD INCOME QUINTILE	TIME SINCE DIAGNOSIS (YEARS)	RSR (RELATIVE SURVIVAL RATIO)
Q1	0.25	0.86
Q1	0.50	0.72
Q1	0.75	0.64
Q1	1.00	0.58
Q1	1.50	0.49
Q1	2.00	0.42
Q1	2.50	0.37
Q1	3.00	0.35
Q1	3.50	0.34
Q1	4.00	0.30
Q1	4.50	0.30
Q1	5.00	0.30
Q2	0.25	0.84

Q2	0.50	0.72
Q2	0.75	0.63
Q2	1.00	0.56
Q2	1.50	0.45
Q2	2.00	0.43
Q2	2.50	0.37
Q2	3.00	0.35
Q2	3.50	0.34
Q2	4.00	0.34
Q2	4.50	0.32
Q2	5.00	0.32
Q3	0.25	0.93
Q3	0.50	0.82
Q3	0.75	0.76
Q3	1.00	0.69
Q3	1.50	0.53
Q3	2.00	0.49
Q3	2.50	0.48
Q3	3.00	0.48
Q3	3.50	0.44
Q3	4.00	0.44
Q3	4.50	0.43
Q3	5.00	0.43

Q4	0.25	0.86
Q4	0.50	0.73
Q4	0.75	0.61
Q4	1.00	0.54
Q4	1.50	0.44
Q4	2.00	0.40
Q4	2.50	0.35
Q4	3.00	0.32
Q4	3.50	0.32
Q4	4.00	0.31
Q4	4.50	0.31
Q4	5.00	0.30
Q5	0.25	0.88
Q5	0.50	0.72
Q5	0.75	0.62
Q5	1.00	0.53
Q5	1.50	0.48
Q5	2.00	0.44
Q5	2.50	0.36
Q5	3.00	0.34
Q5	3.50	0.34
Q5	4.00	0.34

Q5	4.50	0.34
Q5	5.00	0.34

Source: Ontario Cancer Registry, 2018 (Cancer Care Ontario).

Notes: Cases with missing income quintile were excluded.
Neighbourhood income quintile: Q1 (lowest), Q2, Q3, Q4, Q5 (highest).

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